DRAFT : Dr Fletcher did not read valedictory portion (recording n.g.)

REMARKS

by

Dr. James C. Fletcher, Administrator

National Aeronautics and Space Administration

Fifteenth Anniversary NASA Dinner

National Space Club

Washington Hilton Hotel

October 4, 1973

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ROUTING SLIP

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He also said that he was glad Wernher had left NASA as he [Fletcher] can now get his seat on the shuttle with ~~Webb~~ Dale Myers and Geo for what it flies.

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Because the members of this audience are already familiar with our accomplishments so far in this decade, and with our presently approved programs, I would like to use my allotted time to describe for you briefly our current thinking about some new programs we want to start later in this decade and the next.

I emphasize that this thinking is tentative, and in flux. Contributions from industry, solicited or unsolicited, are welcome and necessary. Here, then, are some major points around which our planning for the future is presently organized:

1. The availability of the Space Shuttle for operational use by 1980 will be a dominating factor. Much of our present planning is geared to identifying and providing the most productive payloads for the Shuttle in the Eighties. That is where the action is today. This includes, of course, productive and imaginative missions for the Spacelab module the Europeans are developing.

2. The Large Space Telescope (LST) is expected to become an important space science program. We are now working on the conceptual designs. As we see it now, the LST will be launched by the Space Shuttle, will stay in orbit for many years, will be operated for the most part by observers on the ground, and will be visited repeatedly by the Space Shuttle for repairs, change of instruments, and collection of data. It could also be brought back to Earth for a major overhaul if necessary.

The LST will be a three-meter optical telescope (about 120 inches in diameter) with very low diffraction or distortion. We would like to have it available in the early Eighties for use by the world's astronomers as a permanent observatory in space, just as an observatory on a mountain top is now available. In some important ways the LST will be 100 times more effective than the best optical telescopes on Earth. As we have told the Congress, such a telescope can make crucial contributions to our understanding of the content, structure, scale, and evolution of the universe. I think it fair to say that successful establishment of such a large telescope in orbit will be a giant leap for mankind comparable to the first landing on the Moon. And it will be in constant use for a decade or more.

3. Our Office of Space Science is also planning to use the Shuttle to orbit a number of other observatories, such as a Solar Physics Observatory, a Radio Astronomy Observatory, and Observatories to study the sources of high-energy x-rays and gamma rays. We are also planning to use the Spacelab module of the Shuttle for scientific studies, such as a solar physics mission. This would give us the opportunity to follow up the tremendously valuable solar studies made in Skylab at frequent intervals and at relatively low cost.

4. In the applications field, we have a very challenging goal, and that is to develop a large Earth Observatory Satellite, or EOS, to be orbited by the Space Shuttle. This will be a highly advanced space platform serving such disciplines as Earth resources survey, weather and climate studies, oceanography, and environmental quality, including pollution monitoring. EOS will combine the technologies now being demonstrated in the NIMBUS and ERTS programs, and take these technologies a big step forward. In addition, EOS will stress new technology for environmental protection. We will, of course, continue to improve the operational weather satellites, and develop specialized Earth observation satellites which appear promising.

5. Exploration of the planets will continue to move forward in logical steps, using unmanned satellites. These steps will probably be modest in terms of investment in new spacecraft, but they will be substantial. For example, the two Mariner spacecraft we will launch toward Jupiter and Saturn in 1977 will incorporate significant advances in automation and reliability.

The direction and extent of our planetary effort during NASA's next 15 years will depend in considerable measure on the results we will receive from the Pioneer missions to Jupiter this December and in 1974, the Venus/Mercury flybys in 1974, the Soviet landings on Mars in 1974, and our Viking landings on Mars in 1976. Failure of any of these missions will not stop planetary exploration; but dramatic discoveries from any or all of them will certainly arouse public interest and increase support for more ambitious follow on missions. Skylab's studies of the Comet Kohoutek should also increase public interest in planetary missions in addition to yielding valuable new information about the solar system.

I hope members of this audience will take a strong initiative in assisting NASA in our role of informing the public on the accomplishments in our current planetary programs, and the reasons for continuing these endeavors, which do not have a quick pay-off like the applications satellites but which do have the potential for becoming one of the most stimulating and rewarding enterprises of Mankind in the remaining years of this century.

6. One of the lesser known activities of NASA, but one of the most important, is the tracking of spacecraft and the acquisition of data from them. This function assumes even greater importance as we send spacecraft billions of miles to the outer reaches of the solar system, and as great masses of information pour in from our advanced scientific and applications satellites in Earth orbit.

We are now well prepared to receive reports from the Pioneer 10 spacecraft as it flies past the giant planet Jupiter in early December. We now have three large parabolic antennas, 210 feet in diameter, at strategic locations around the world, which can pick up signals from Pioneer as weak as one quintillionth of a watt -- that's 10 to the minus 18th watts for the engineers in the crowd. Our third 210-foot antenna has just been completed in Spain. The second was dedicated earlier this year in Australia. The first, of course, is at Goldstone, California, as you know from the way it handled the excellent pictures of Mars from Mariner 9, which changed our whole concept of that planet.

To help handle the increasing flood of data from scientific and applications satellites in Earth orbit, we have a signficant new proposal called the Tracking and Data Relay Satellite.

This new system will employ two highly specialized communications satellites in geosynchronous orbit which will receive data from NASA mission spacecraft in Earth orbit and re-transmit this data back to a central station in the United States.

This will result in greatly improved spacecraft support, the elimination of some ground network stations, and a significant reduction in the costs of network ssupport for NASA missions.

This new system will also reduce our reliance on tape recorders aboard satellites. Tape recorders have always been a weak link in the chain of satellite reliability.

Even though NASA is phasing out its many years of work in developing new technology for use in commercial communications via satellite, and turning this responsibility over to private enterprise, our new Tracking and Data Relay Satellite proposal does provide a good example of our continued thrust in increasing the effectiveness of space communications and thereby greatly enhancing the benefits received from our space effort.

7. Important decisions are still to be made on the additional vehicles we need to supplement the Shuttle as the National Space Transportation System. It is obvious that the region of geosynchronous orbit, 22,300 miles above the Earth, is rapidly becoming the most important place in the universe beyond Earth itself. We will definitely want a reusable Space Tug for reaching and operating in geosynchronous orbit as soon as we can afford one.

8. Useful as the Spacelab module will be, it cannot indefinitely fill the need for large space stations in Earth orbit. On the basis of what we know today, I believe the next major step in creating new space capabilities, after Shuttle and the Tug, must be development of manned space station modules.

9. When will we return to the Moon? I believe development of the Tug and space station modules should come first. But surely the Moon will be a most valuable outpost for study of the universe. Impetus for return to the Moon could very well come from the desire to mount a major international cooperative effort there. I would welcome such an international undertaking, and it should be feasible during the second half of the next decade.

10. I do not expect an American landing on Mars during NASA's next 15 years. The only way such a mission could be carried out in this century, in my opinion, is on an international basis. But I would not want to make any hard and fast predictions about the desirability of a Mars expedition until the results are in from the Viking landings in 1976. You may recall that the President's Space Task Group recommended in 1969 that a manned landing on Mars should be a long-range goal of the NASA space effort, and that our shorter-range program decisions should be made with this in mind. I think our work on the Shuttle, our Viking program, and my recommendations regarding a Space Tug, space stations in Earth orbit, and an international base on the Moon are all important steps toward this long range goal. They are important in themselves, but they will also make a Mars landing by the end of this century feasible and desirable, especially if undertaken as a great cooperative effort of the peoples of planet Earth.

The aeronautical research we are doing today will have profound impacts on the new planes that will be built in the Eighties and Nineties. It will help remove such restrictions to the expected growth of civil aviation as noise, pollution, and congestion. It will lead to rapid growth in short haul air transportation. It will help protect our balance of trade. In short, I don't know of any comparable investment this country is making that will have more beneficial impacts on the quality of American life.

NASA budgets for aeronautical research have risen steadily in recent years. I think this trend should continue.

Looking further into the future, I think NASA research will show how supersonic transports can be built that will be economically viable and not harmful to the environment. I believe it is very important that NASA continue to do this research on advanced supersonic technology. We also want to press forward with the technology to use liquid hydrogen as the fuel for large aircraft. I think we will see hydrogen in general use for large aircraft before the end of this century.

In conclusion, I would like to say a few words on what I think NASA's role, as an agency of the U. S. Government, should continue to be.

Unless and until Congress sees fit to change our role, I think NASA should continue to have this one primary mission: to do the necessary research and development in space and aeronautics to identify promising opportunities and meet national needs.

In performing this primary mission, we will continue to work closely with user agencies in government and with the aerospace industry. This has been part of the NACA and NASA tradition since 1915.

We are also very much interested at this time in transferring NASA technology and the benefit of NASA's recent experience to non-aerospace sectors of the economy and in helping other agencies of the government solve some of the difficult problems facing our society today. It so happens that we have the reservoir of technology, and also some available manpower, at a time when the Environmental Protection Agency and other government departments need our help. It so happens that we have unique capabilities to help bring into being a pollution-free, resource-saving hydrogen economy, and to facilitate extensive use of the ultimate energy source, solar power.

We welcome the opportunity to perform these additional services when they are needed and requested. But it remains quite clear to us at NASA that our primary function is to be this nation's civilian R&D managers for space and aeronautics. We believe that this traditional role assures us a challenging and rewarding future during NASA's next 15 years, and that we can, in close cooperation with other agencies and the aerospace industry, continue to perform valuable services for the American people and all the people of this planet throughout the remainder of this century.